

CLAIMS:

1. An electronic device being provided with a microelectromechanical system (MEMS) element that comprises:
 - a first electrode that is present on a surface of a substrate;
 - a movable element that overlies at least partially the first electrode and

5 comprises a piezoelectric actuator, which movable element is movable towards and from the substrate by application of an actuation voltage between a first and a second position, in which first position it is separated from the substrate by a gap,
wherein the piezoelectric actuator comprises a piezoelectric layer that is on opposite surfaces provided with a second and a third electrode respectively, said second

10 electrode facing the substrate and said third electrode forming an input electrode of the MEMS element, so that a current path between through the MEMS element comprises the piezoelectric layer and the tunable gap.
2. An electronic device as claimed in claim 1, wherein the first and the second
15 electrode are arranged such that the first electrode is in contact with the dielectric layer in the second, closed position of the movable element.
3. An electronic device as claimed in claim 2, wherein a fourth electrode is
20 present on the substrate surface, that contacts the second electrode, when the movable element is in its second, closed position.
4. An electronic device as claimed in claim 1, wherein the first electrode contacts
the second electrode in the second, closed position of the movable element.
- 25 5. An electronic device as claimed in claim 1, wherein the movable element is free of any additional structural layer, and at least one of the piezoelectric layer and the layer of the third electrode constitute a carrier layer of the movable element.

6. An electronic device as claimed in claim 1 or 5, wherein the third electrode extends laterally as an interconnect to another element in the device.
7. An electronic device as claimed in claim 6, wherein the second electrode is connected to ground, such that the third electrode functions as a transmission line.
8. An electronic device as claimed in claim 1 or 2, wherein the second electrode has a thickness that is at most half of the thickness of the third electrode.
- 10 9. An electronic device as claimed in claim 8, wherein the thickness of the second electrode is at most a fifth of the thickness of the third electrode.
10. An electronic device as claimed in claim 1 or 5, wherein at least one of the layers of the second and the third electrode is structured, such that portions of the piezoelectric layer can be provided with different driving voltages.